(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 340 713 A3

(12) EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
08.10.2003 Bulletin 2003/41

(43) Date of publication A2:
03.09.2003 Bulletin 2003/36

(21) Application number: **03003861.6**

(22) Date of filing: **20.02.2003**

(51) Int Cl.[7]: **B67C 3/26**, B67C 3/28, B65B 39/00

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT SE SI SK TR
Designated Extension States:
AL LT LV MK RO

(30) Priority: **20.02.2002 JP 2002043917**

(71) Applicant: **Toyo Jidoki Co., Ltd.**
Tokyo (JP)

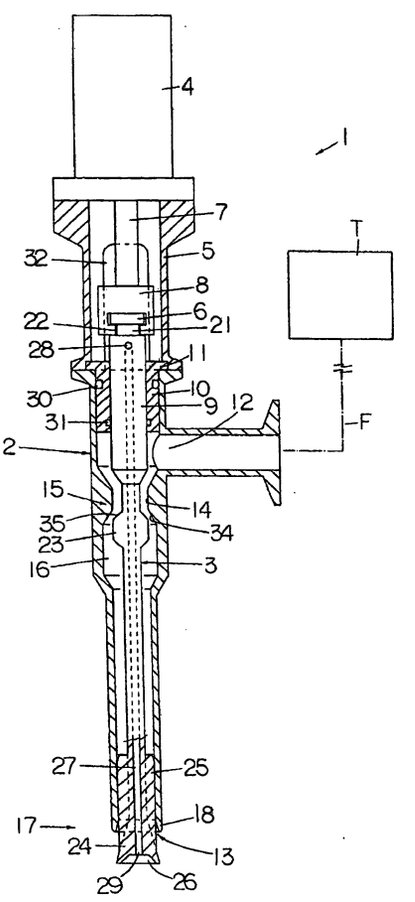
(72) Inventors:
- **Nagahata, Kuniyoshi**
  Iwakuni-shi, Yamaguchi (JP)
- **Tanaka, Namiyoshi**
  Iwakuni-shi, Yamaguchi (JP)

(74) Representative: **Schubert, Siegmar, Dipl.-Ing.**
Patentanwälte
Dannenberg Schubert Gudel
Grosse Eschenheimer Strasse 39
60313 Frankfurt (DE)

(54) Liquid filling nozzle and liquid filling apparatus

(57) A liquid filling nozzle (1) including: a tubular nozzle main body (2) having a liquid supply opening and a liquid discharge port, a center rod (3) disposed inside the nozzle main body and raised and lowered, and an opening-and-closing valve body (24) which opens the liquid discharge port (13) when the center rod is lowered and closes the liquid discharge port when the center rod is raised. A throttle valve mechanism (15) formed by a throttle valve seat (14), which is disposed on the inside wall surface of the nozzle main body (2), and a throttle valve body (23), which is disposed on the center rod (3), is provided in the filling nozzle (1) so that the throttle valve mechanism opens when the center rod is lowered, and, when the center rod is raised, the throttle valve mechanism (15) closes before the opening-and-closing valve body (24) closes off the liquid discharge port (13), thus constricting the flow path for a liquid.

FIG. 1



EP 1 340 713 A3

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 03 00 3861

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Y	FR 2 208 376 A (THIMONNIER & CIE) 21 June 1974 (1974-06-21) * page 1, line 33 - page 2, line 5 * * page 3, line 13 - line 17 * * page 4, line 21 - line 29 * * page 4, line 34 - page 5, line 3 * * figures *	1-5	B67C3/26 B67C3/28 B65B39/00
Y	US 5 775 387 A (KANEKO YUTAKA) 7 July 1998 (1998-07-07) * figures 5,7 *	1-5	
A	US 5 878 992 A (SUMMERS PAUL ET AL) 9 March 1999 (1999-03-09)		
A	WO 01 40098 A (SERAC GROUP) 7 June 2001 (2001-06-07)		
A	US 5 004 009 A (BUNCE KEVIN R) 2 April 1991 (1991-04-02)		

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

B67C
B65B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	14 August 2003	Martínez Navarro, A.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 03 00 3861

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

14-08-2003

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 2208376 A	21-06-1974	FR 2208376 A5	21-06-1974
		DE 2358157 A1	30-05-1974
US 5775387 A	07-07-1998	NONE	
US 5878992 A	09-03-1999	CA 2236510 A1	02-11-1998
WO 0140098 A	07-06-2001	FR 2801579 A1	01-06-2001
		EP 1244598 A1	02-10-2002
		WO 0140098 A1	07-06-2001
		JP 2003515510 T	07-05-2003
		US 6375050 B1	23-04-2002
US 5004009 A	02-04-1991	DE 3854305 D1	14-09-1995
		DE 3854305 T2	01-02-1996
		DE 3876944 D1	04-02-1993
		DE 3876944 T2	03-06-1993
		EP 0314397 A1	03-05-1989
		EP 0490884 A1	17-06-1992
		EP 0643011 A1	15-03-1995
		JP 1153401 A	15-06-1989
		JP 2992636 B2	20-12-1999

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82